PROMOTING HEALTHY BEHAVIOR IN ADOLESCENCE: THE CASE OF SEXUALITY AND PREGNANCY*

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YOUTHS BEGIN TO ENGAGE IN MANY health-related behaviors at the same time that they confront a plethora of intertwined and complex challenges, including new forms of autonomy, intimacy, and achievement. Adolescence, particularly the first half, is sometimes characterized by a series of developmental tasks that need to be mastered. These include but are not limited to accommodation to pubertal changes, alteration of childhood ties to parents, regulation of moods, reorganization of self-definitions, acquisition of new academic and work-related skills, and management of sexual arousal and opposite-sex relationships.[1-7]

At the same time, youth begin to make decisions about whether, when, and how often to engage in a series of health-related behaviors. Some of these involve adherence to regimes for controlling chronic illnesses that have existed since childhood, such as diabetes. Others focus on continuing health regimes started during childhood, such as exercise and good nutrition. Still other decisions require acquisition of new health-promoting behaviors. Most research has stressed the last set, perhaps because many of the behaviors being acquired are perceived as the province of adults, such as sexual intercourse and drinking.

We begin by discussing three models that help to frame the discourse about adolescent health promotion. Termed the ecological, the vulnerability-resiliency, and the family systems models, the three allow more precise under-

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standing of how adolescents manage health-related decisions and how health behavior is modified. Illustrations are taken from a 20-year study of adolescent pregnancy and its consequences.[8] Following this introduction to plausible models for studying youth health behavior, their applicability to one set of adolescent health concerns—sexuality—is considered. First a definition of healthy sexuality is presented to highlight that health behavior need not be framed exclusively in disease terms. Second, antecedent risk factors for early sexual intercourse and sporadic contraceptive use are briefly reviewed, with an eye toward how such factors translate into programmatic efforts to encourage safe sexual practices. Third, behavioral principles underlying current intervention programs are outlined to point out the gap between current research and intervention agendas. We conclude by looking at how health promotion and disease prevention efforts frame the discourse on adolescent sexuality.

Models for Studying Adolescent Health Behavior

Ecological Model

The first model, termed an ecological model, focuses on how individual and environmental characteristics work together to produce behavior, or behavioral change, in a person.[9] Individuals live in multiple contexts—nuclear family, extended family, peer group, school, neighborhood, larger community. All may exert influences on the developing person across the life span, and individuals may respond differently to the same influences. While not a novel way to conceptualize development, until very recently this model was only applied to young children. It was believed that early experiences shaped development in such a way that later change was believed to be difficult if not impossible.[10,11] A corollary of this premise was that once a change had been initiated in young children, it would be sustained with little effort. Both contributed to the "stepchild" status of adolescent research in developmental psychology until quite recently.[12,13]

An illustration of dramatic change in the adolescent years and after is the Baltimore study, a 20-year follow-up of more than 300 primarily black, urban pregnant teen-agers, their mothers, and their first-born children.[8] While teenage mothers are typically at a disadvantage compared to their peers who delay childbearing, Baltimore study mothers not only showed great variation in outcomes such as subsequent fertility, education, work, and income, but also exhibited much change between the first four and 17 years following the pregnancy; for example, almost one half continued their education after their first-borns entered school. Additionally, interventions during pregnancy and

shortly thereafter made a major difference in the life courses of these youths. Young women who participated in a special prenatal clinic for adolescents were more likely to postpone the birth of a second child than women who went to the general prenatal clinic; the special clinic attendees had fewer children and more education, both of which were associated with economic well-being 17 years later. And teen-agers who attended a special school were much more likely to complete high school and ultimately to obtain better jobs and economic security.

VULNERABILITY-RESILIENCY MODELS

The second model employs the constructs of risk and vulnerability originally applied to developmental psychopathology.[14] Vulnerability implies that a particular child or a group of children at risk in a probabilistic sense for manifesting a certain behavior or set of behaviors is susceptible to decrements in well-being. Risk factors are those biological, psychosocial, and environmental conditions, broadly defined, known to be associated with negative outcomes or decrements in well-being. The opposite of vulnerability and risk factors is resilience and protective factors. Protective factors and their links to resiliency have not been studied as extensively as risk factors and their links to vulnerability.[8,14-16]

Economic success 17 years after the birth of the first-born children was predicted in the Baltimore sample of teen-age mothers. Protective factors for resilience included family background (having a mother or father with high education and not having been on welfare as a child), education and motivation (being on grade level in school prior to the pregnancy, having high educational aspirations, and completing high school in a timely fashion), and marriage and fertility history (having fewer and more widely spaced subsequent children and having an early and continuing marriage).[10]

FAMILY SYSTEMS MODEL

The third model, the family systems approach, takes as a starting point that not only is a teen-age mother embedded in a family system, but her assumption of a parenting role affects each member of the family and the family as a whole.[17] In the Baltimore study, the effects of teen-age parenthood on the youth's mother and offspring have been examined and some negative consequences found. One half of the first-born children failed a grade in school by age 16, compared to 20% in comparable urban black samples with mothers who delayed childbearing. Twice as many youths whose mothers were teen-age became young parents themselves compared to the teen-age offspring of older mothers.[18] In those families with a second-generation teen-age birth,

residence in a three-generational versus two-generational household is being studied; multigenerational residential patterns are associated with less adequate parenting behavior on the part of the teen-age mothers and their mothers, as observed in toddler-adult interaction sequences.[17]

USEFULNESS OF THESE MODELS

All three models allow study of adolescent health behavior, here illustrated by teen-age pregnancy and subsequent fertility. Each specifies ways in which some individuals manage health behaviors or the consequences of health behaviors in positive ways, while others do not. Using such frameworks to study health behaviors allows identification of antecedent risk and protective factors as well as environmental constraints upon and opportunities for health behaviors, which have implications for the design of health promotion interventions. These models also are ideal for program evaluations, as is illustrated by the Baltimore study that began as an evaluation of an adolescent prenatal care program. The antecedent to teen-age pregnancy—teen-age sexuality—is used as an illustrative case.*

Teenage Sexuality

A DEFINITION OF SEXUAL WELL-BEING

We have defined adolescent sexual well-being to include four developmental challenges—positive feelings about one's body and the acquisition of secondary sexual characteristics, feelings of sexual arousal and desire, the engagement in sexual behaviors, and, for those teen-agers who are engaging in sexual intercourse, the practice of safe sex. All of these occur in the context of the other social, emotional, and cognitive challenges facing the adolescent.[4] The transformation into a reproductively-mature individual is a major part of the first half of adolescence. How the adolescent experiences these changes, as well as others' responses to the adolescent's emerging adult body, lay the groundwork for teen-agers feelings about their bodies. Healthy feelings include eventual comfort with pubertal changes, satisfaction with body shape and size, beliefs about physical attractiveness, and acceptance of sexual desirability.[19] The emergence of sexual arousal is a response to internal hormonal changes and external responses to the physical manifestations of the internal changes. The desired outcome is an acceptance of these feelings.[20] Sexual behaviors result from arousal and contextual factors. They may be expressed individually or with another person. Typically, individual

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responses focus on masturbation. Healthy sexuality would include feeling comfortable about choosing to engage in individual sexual behaviors or not to practice them. Sexual behaviors with a partner include kissing, genital and breast touching, vaginal intercourse, oral sex, and anal intercourse. These sexual behaviors may be voluntary or involuntary. Sexual well-being involves engaging in such behavior voluntarily, with respect for one's partner.[21,22] For those youth who are engaging in intercourse, healthy sexuality involves the practice of safe sex. Safe sex typically refers to practices to avoid pregnancy and sexually transmitted diseases. The use of contraceptives is one way to prevent unwanted pregnancies. Another is sexual practices other than intercourse to prevent pregnancy. For example, in one national survey of older youth, 16% of the girls had engaged in oral sex but had never had intercourse.[23] Safe sex also prevents sexually transmitted diseases, including HIV infection. Only one contraceptive method—condoms—is known to be effective in preventing them. Sexual practices other than intercourse also may reduce the likelihood of acquiring sexually transmitted diseases. Programs designed to enhance the practice of safe sex are sometimes different depending on whether pregnancy or disease prevention is the outcome to be prevented.[24,25]

At least three developmental issues need to be considered when studying these four aspects of sexual well-being—the timing of behaviors associated with sexual well-being, the co-occurrence of sexual behaviors with other behaviors, and age trends in the expression of sexual behaviors.

Developmental Issues in the Study of Sexual Well-Being

Timing of behaviors associated with sexual well-being. Timing refers to where an individual falls with respect to a certain behavior vis-a-vis her or his peer group.[3] The peer group may be defined in terms of national, community, school, or subgroup norms (the most common subgroup classifications being racial, gender, and cultural).

Literature on the timing of puberty suggests that early puberty renders girls vulnerable for various behaviors—smoking, drinking, depressive symptoms, negative body image, and dieting behavior.[3,12,26] The early maturer probably experiences sexual arousal earlier, given links to hormonal levels. The early maturing girl requests (or demands) earlier independence from her parents and has older friends. Additionally, girls with mature bodies probably elicit responses from males, leading to earlier dating (although other girls "catch up" fairly rapidly vis-à-vis dating behavior, smoking, and drinking) and earlier sexual experiences.[27,28] Thus, timing of puberty has implications for the timing of other sexual events.

The timing of sexual intercourse also has been studied (little work has addressed timing of other sexual behaviors).[20,29] Sexual experience by late adolescence has become so common over the last two decades as to be normative. By the end of the 19th year today, three quarters of white girls, four fifths of black girls, four fifths of white boys, and almost all black boys have had intercourse, based on data from several national surveys.[30,31] This state of affairs in part has shifted concern to the timing of onset during adolescence (rather than after adolescence) and to the practice of safe sex. Early onset of intercourse is defined here as intercourse at age 15 or earlier, and late onset is defined as first intercourse occurring after adolescence. Distinctions also may be made between onset at ages 16–17 and 18–19. Unfortunately, different surveys have used various age classifications, making it difficult to use these classifications across studies. The same is true of studies focusing on risk factors associated with early sex.

The timing of the onset of sexual intercourse raises moral, legal, and developmental issues. Moral perspectives suggest that intercourse should be postponed until marriage, and few adolescents marry. Legal perspectives center on the rights and responsibilities of minors as well as the parents of minors (with most legal concern centering on access to contraceptive information and abortion).[32,33] Developmental perspectives tend to side-step moral and legal concerns, focusing instead on the abilities of different-aged youth to make informed decisions about engaging in sexual behavior and on the identification of antecedent factors that contribute to the timing of sexual behavior.

Co-occurrence of other behaviors. Another issue involves co-occurrence of sexual with other behaviors. Early onset of sexual behavior is associated with early onset of smoking and drinking, use of illegal substances, school dropout, and juvenile delinquency.[8,34,35] When such behaviors cluster together, youth are vulnerable for long-term problems. Little work exists on how such behavior patterns translate into later problems and whether certain behaviors render youth more vulnerable for later problems than others.[36]

Age trends. It is believed that younger adolescents exhibit fewer health-promoting behaviors than do older adolescents or adults. Literature from work on the chronically ill supports this contention. With respect to sexual well-being, comparisons are usually made between the sexual behavior of younger and older sexually active adolescents, with differences in the antecedent factors contributing to sexual well-being, as discussed later on.

ANTECEDENT RISK FACTORS FOR SEXUAL WELL-BEING

Earlier reviews have summarized the primarily sociological literature specifying risk factors for engaging in unprotected intercourse.[21,22,37,38] Irregular

contraceptive use is associated with lower social class, nonattendance at college, and fundamentalist Protestant affiliation. Situational determinants are not having a steady partner, having never been pregnant, infrequent intercourse, and no access to free, confidential family planning. Familial correlates are little communication with parents, perceived troubled relationship with parent and lack of knowledge of parents' contraceptive experience. Peer influences focus on having friends who become parents. Low educational achievement and aspirations and irregular contraceptive use are associated.

Three sets of antecedent conditions are discussed here—the cultural context in which teen-agers develop their sexuality, individual factors that may render teen-agers vulnerable to decrements in sexual well-being (biological, emotional, and social cognitive factors), and the proximal environmental contexts in which teen-agers find themselves (family, peer, and school).

CULTURAL FACTORS

Cultural context. All societies control adolescent sexuality because sexual desire emerges as the adolescent acquires a reproductively mature body rather than when a particular society deems it appropriate to begin producing offspring. Diverse strategies to control youthful sexuality have been developed, as historical and cross-cultural studies suggest.[39]

Morality and prohibitions against sex during adolescence. In the United States youth receives mixed messages about sexuality. Little is said about sexual well-being. Instead, the messages are often framed in terms of morality. While premarital sex is a fact of current Western societal experience, teen-agers are still told not to have sex. What youths see across the wider age spectrum is adults of all ages engaging in sex outside the confines of marriage. Even within their own age cohort, youths find the societal message at odds with reality. However, societal messages do not mirror actual behavior, and opprobrium about teen-age sexuality still exists.

Rates of sexual activity among teen-agers in the United States are not notably higher than the rates in several countries in western Europe. Yet adolescent pregnancy and childbearing in the United States, especially among younger teen-agers, exceeds the level of most other industrialized nations.[40,41] This is due to poor contraceptive use among American teen-agers. Case studies by the Alan Guttmacher Institute suggest that American youths are exposed to mixed messages about contraception and that birth control services are not effectively delivered to the teen-age population.[40]

Because of the persistence of sexual prohibitions couched in moralistic and judgmental terms, youths are placed in a cultural double bind. If it is unacceptable to be sexually active, then contraceptive advice and planning be-

come less salient, and perhaps not even acceptable. At the same time that they are urged to avoid sex, youth also are told to act responsibly. But if intercourse is morally reprehensible, it is wrong to plan for it. In fact, contraceptive use is lower among those who have negative attitudes about having sex than those who have positive attitudes.[42] We believe that the contradiction between the increasing numbers of sexually active girls (especially those age 17 and younger) and the moral prohibitions against sexuality fuel many of the institutional, familial, and individual responses to contraceptive use in the United States. This is an underlying reason for our apparent failure to assist teen-agers in responsible contraceptive use, a failure grimly reflected in our higher rates of teen-age pregnancy than most Western European countries.

Gender and culture. Societal constructions of youthful sexuality differ for boys and girls. Even as sexual behavior has increased in girls, as female sexual arousal has been acknowledged, and as reciprocity in sexual relationships is more often seen as a goal for adults, teen-agers still receive gender-linked messages.[43]

Sexual desire is seen as paramount for boys and is ignored for girls. Girls' desires are almost never discussed, only the consequences of their sexuality, specifically pregnancy. By pretending that female desire does not exist, girls are given few strategies for incorporating it into their lives or for planning to handle it. Contrast this situation with that of boys, for whom desire is a given. Boys may even be socialized to emphasize demonstration of their potency as more important than acting responsibly, limiting their options as well. In one study, for example, mother-daughter communication about contraceptive use and sexuality was associated with later age at first intercourse, as was mother-son communication. However, father-son discussions were linked to earlier sexual activity in boys,[44] perhaps because father-son discussions centered on desire rather than on responsibility.

Females, in being portrayed as having little desire and having to face the practical and moral consequences of sexuality, are characterized as victims. Girls must protect themselves against the desires of men outside of marriage, given that many societal controls to protect girls seem no longer to be in place (chaperonage, after school parental supervision, community sanctions encouraging marriage when a pregnancy occurs, sex not being explicitly portrayed in the media) and that the majority of teen-agers are having sex. Even in cases without direct physical coercion (perhaps one fifth to as many as one quarter of all young women have had sex against their will),[30] such a situation sets up males and females as antagonists, in that males are the perpetrators and females the victims of sexual desire. How sexuality is negotiated in such a situation is not clear. An example of the difficulties males and females may have in negotiating follows: in one study, girls believed that their boyfriends

were not very likely to use condoms.[45] At the same time boys were more likely to report their intention to use condoms than were girls. Indeed, most boys may be willing to use condoms: Four fifths of the boys in the 1988 national survey did not think that using condoms was too much trouble in the face of AIDS.[31]

Media. Another window into the cultural milieu in which teen-agers develop sexual well-being is the media. Youth are bombarded with media messages about attractiveness and sexuality—at least a third of all prime time commercials are what has been termed "beauty" advertisements, the selling of products using young, attractive women,[46] and the number and explicitness of sexual references have increased dramatically during the last decade. In 1985 the average teen-age viewer saw almost 2,000 sexual references on television; in stark contrast, references to birth control or to sexually transmitted diseases were almost nonexistent.[47]

How does this sexually charged environment affect adolescents? Several preliminary conclusions can be drawn from research on high-school and college samples. The viewing of "beauty" advertisements or television shows (e.g., "Charlie's Angels") has been associated with high school girls reporting that being attractive was important to them and with college men reporting that "real life" women (as potential girlfriends) were less physically appealing to them.[48] In one national longitudinal study, the amount of solitary or peer (as opposed to parent) television viewing was associated with earlier onset of intercourse in boys measured several years later, as was higher levels of television viewing for those with moderate education aspirations.[49] Exposure to rock videos was associated with higher levels of acceptance of premarital sex.[50] College students who report relatively more hours of soap-opera viewing believe that a higher proportion of the population are divorced and have had children when they were not married.[21,51]

Individual factors

Biological factors. Of the biological changes associated with puberty, hormonal factors are thought to account in some part for the onset of sexual activity, either through effects occurring prenatally or activation effects which change hormonal levels at puberty.[52,53] Hormonal activation may influence behavior directly by increasing arousal or indirectly by the social stimulus associated with physical changes. That boys' levels of testosterone are associated with sexual behavior and arousal, independent of secondary sexual development, is evidence for a direct effect.[54] Girls' sexual arousal, but not behavior (i.e., intercourse), is associated with testosterone levels, suggesting that social factors may play a greater role in their coital behavior.[55] However, whether engagement in sexual intercourse increases androgen levels or vice versa is not known.

Additionally, contextual effects, if entered into the equation, might account for more of the variation in sexual activity than hormonal levels. Initiation of sexual behavior is highly associated with what is perceived as normative in one's peer group,[56] so it is likely that while very early sexual initiations may be in part hormonally-mediated, by the time that behavior is normative, social factors may account for sexual initiation.[27] Thus, even when hormonal effects are demonstrated, they must be evaluated relative to social factors before assuming direct or large hormonal-sexual behavior associations.[57] Race differences in the initiation of intercourse prior to puberty also speak to the importance of social and contextual factors upon sexual behavior.[29,58]

Emotional factors. Changes in emotionality could potentially contribute to young adolescents' difficulty practicing safe sex or delaying intercourse. Indeed, increases in negative affects, both depressive and aggressive, have been documented for the first half of adolescence.[1,59] These increases are due in part to the number of life events that occur during this period.[57,60] Lower impulse control also might be a risk factor for practicing unsafe sex. However, links between emotional functioning and sexual behavior have not been studied.

Social cognitive factors. A number of social-cognitive processes could influence adolescents' abilities to manage their sexual well-being, including: understanding of intimate relationships, understanding the biological process of conception, decision making or problem solving skills, and perceptions of risk.[21,22]

Environmental factors

Peers. One of the most accepted hallmarks of adolescence is the increased importance of peers, as seen in time spent with them, value of their opinions, beliefs that one's behavior is similar to one's peers, and conformity to one's perceptions of their opinions.[61-63] However, it is important to remember that the peer groups of many adolescents have values similar to those of parents and that great variation is seen in peer group beliefs and behavior.[64]

Teen-agers depend on peers for much of their sexual information and are probably influenced by peers' sexual behavior. Peers, typically same-sex ones, are reported to be the major sex information source.[65] Misinformation is probably communicated with great frequency throughout peer networks. For example, teen-agers are likely to perceive their peers as having more permissive attitudes toward sex than they hold themselves. In an 1988 national survey of students, one third believed that it is not OK to have sex, but believed that one quarter of their peers would agree. Four fifths felt it is OK to

say no to sex, but only three fifths believed that their peers would agree.[66] We know little about how friends influence teen-agers' sexual behavior. At the very least, teen-agers act on what they believe their friends are doing, leaving aside the question whether their perceptions are accurate.[67] Blacks may be less influenced by their peers than are whites, boys less than girls, and older teens less than younger ones.[56,68-71] Perhaps peers are more salient when the behavior in question is less common or has acquired less "normative" status in a particular group.

Parents. Discussions about sex and reproduction between parents and their adolescent children occur more frequently than is commonly thought. In a 1982 survey, approximately two thirds of 15-year-old girls had talked about intercourse and one half about contraception with their parents; similar percentages were reported by 18-year-olds.[72] Large discrepancies exist between the perceptions of parents and their teen-agers on their discussions regarding sex and birth control.[73] Teen-agers who rate perceived communication with their parents as poor are likely to initiate sex, as well as smoking and drinking, earlier than those who do not.[35] Using the 1982 NSFG, Casper[74] examined the effects of family communication (as measured quite grossly by one or two questions upon girls' sexual behavior) finding that reported family communication was associated with contraceptive use but not with the onset of sexual activity. While reported close relationships with parents are associated with later age of intercourse and better contraceptive use,[38,75] almost no process-oriented research examines how parents may influence their teen-agers' sexual behavior.[21]

INTERVENTION STRATEGIES TO ALTER SEXUAL BEHAVIOR

Programs to promote healthy sexual behavior in adolescents may be divided into promotion programs (sexual behavior is embedded into a larger social context, and the focus is on general health education) and prevention programs (reduction of teenage pregnancy, AIDS, or sexually transmitted diseases is targeted).

Health promotion programs

Traditional sex education. Most (80%) American high school students have taken a sex education course. Traditional sex education programs try to increase students' reproductive and (sometimes) contraceptive knowledge, in hopes that teen-agers will be more likely to make informed sexual decisions. Such programs often increase knowledge regarding reproduction and pregnancy risk.[76,77] For example, a 1982 survey reported that four fifths and two thirds of 15-year-old females said they had learned about intercourse and

contraception respectively in school sex education classes.[72] Whether and in what direction traditional sex education programs influence adolescents' sexual behavior, however, remains in dispute.[78] Most sexual education programs are not intensive or extensive; fewer than 10% of the urban school districts surveyed in 1984 had a session on contraceptives and how to obtain them prior to the ninth grade, and only about 20% had such sessions prior to the end of high school.[79] Thus, we suspect that, given the relative sparseness of the course offerings in traditional sex education, classes alone will not greatly alter behavior.

Clinics in the schools. A growing number of schools provide reproductive health-related services such as counseling and, in some cases, access to contraceptives and gynecological examinations. Few school-based clinics, however, have been evaluated.[80] In a recent paper describing six school-based clinics, many students reported using clinics for reproductive services when contraceptives are provided, but few reported use of counseling services to discuss sexual decision-making if contraceptive services were not provided.[81] Careful evaluation of these six school-based health clinics suggests that the clinics successfully provide health services to substantial numbers of students (as is their major purpose), that sexual behavior is unaffected by clinic presence or absence, and that clinics do not substantially increase use of birth control.[81]

Employment or continuing education programs. Providing the means to reach otherwise unattainable goals (i.e., going to college when the family is unable to pay or when others in the neighborhood or school are unlikely to attend) is a means to enhance the desirability of delaying pregnancy (and perhaps sexual activity) and the focus on schooling (keeping in mind that teen-agers with high educational aspirations and achievement are less likely to become pregnant and more likely to use contraception).[8,37,38]

Health-promotion programs for adolescents (as related to postponing or engaging in response sexual activity) have fallen into three rather discrete categories—sex education programs, school health clinic programs, and continuing education or employment programs. Surprisingly, the programs that provide general reproductive knowledge and services (and, in some cases, information and access to contraceptives) appear less likely to influence sexual behavior than programs where such knowledge is embedded in the framework of a supportive work or educational program. This supports the notion that providing adolescents with experiences that lead to motivations for a future that competes with teen-age pregnancy can have an impact on teen-age sexual behavior. It should be noted, however, that while sex educa-

tion and school health clinics may provide information germane to delaying pregnancy or the onset of sexual activity; in most cases these are not their major emphases.

Pregnancy prevention programs

Affective or value programs. Several programs have been initiated. One, the Search Institute of Minneapolis, evaluated a four-site school intervention program (with classes in each school serving as control samples) which used a 15-session course (the "Human Sexuality: Values and Choices" Curriculum) for students, with an accompanying three-session class for parents. The course emphasizes the importance of learning and asserting one's own values regarding sexual behavior and communication with parents, placing a high value on abstinence from sexual activity.[82] At initial posttest, program participants were more knowledgeable about sex and had talked to their parents about it more than controls who had not taken the course. Knowledge and communication effects showed a sizable decay several months after the program's completion. Changes in sexual behavior were not assessed.

Problem solving and skills training programs. Several programs attempt to train adolescents in specific skills germane to delaying the onset of sexual activity.[83-85] One such program was based on the Health Belief Model,[86] supplying youth with factual knowledge, group discussions, and role-playing situations.[83,87] Significant positive changes in knowledge and health beliefs were found comparing preprogram and postprogram responses; however, no control group was used.[83] Most virgins who participated in the program still had not had sex three to six months after the program.[88] An extensive replication and evaluation of the program[89] found different effects as a function of both gender and sexual experience, with male virgins more likely to maintain abstinence after program completion, and male nonvirgins (prior to program) exhibiting greater contraceptive efficacy postprogram.

A similar prevention effort is the Postponing Sexual Involvement Program,[85,90] conducted in collaboration between Grady Memorial Hospital and the Atlanta Public Schools. The program provides the traditional human sexuality education taught by nurses as well as sessions on skill building led by peer counselors (11th and 12th graders), and, for those who desire, access to family planning and reproductive health services. Initial analyses of the program's effects suggest long-term program effects on postponement of first intercourse, lower frequencies of intercourse, and fewer pregnancies among those who initiated sexual intercourse after the program had started.[90] The behavior of those sexually active *before* the program began appears to have been unaffected by program participation.

Finally, a school-based intervention program providing birth control and reproductive information, as well as opportunities to role-play problem-solving and communication techniques was found to increase teen-agers' effectiveness in role-playing, decrease their anxiety, and increase their feelings of success while in the role-playing situation.[84] These programs seem promising, given prior successes of similar programs aimed at the prevention of substance use.[91,92]

Communitywide information programs. In perhaps the most integrative approach to problem prevention, some communities have begun integrated efforts within several social contexts (e.g., schools, churches, media) in an attempt to delay sexual onset and reduce pregnancy rates. The School/Community Program for Sexual Risk Reduction Among Teens was established with the goal of reducing unplanned pregnancy in unmarried adolescents in a county of South Carolina in 1982.[93] At school, teachers supplied traditional sex education as well as decision-making and problem-solving skills training. Clergy, other church workers, parents, and youth group leaders were trained to be program leaders as well, and messages regarding responsible teen-age sexual behavior are promoted via the local media. Teen-age birth rates decreased dramatically in the second and third years after the program's initiation when the target county was compared with other local counties as well as with prior years within the target county.

The Primary Prevention Program of the Youth Health Service of Elkins, WV, provides both communitywide and individually-targeted services for adolescents citywide.[94] Prevention efforts also are generally aimed at community institutions such as the media, civic groups, and the school. For teenagers who are judged at relatively high risk for unintended pregnancy (due to family history factors, self-reports of sexual activity, or previous births), more targeted interventions are provided, including sessions on decision-making skills training and counseling. In a one-year follow-up evaluation of the services for adolescents characterized as at moderate risk (e.g., those with a family history of early pregnancy, sexual abuse, or school failure, but who are not yet sexually active themselves), only one of 146 clients had reported initiation of sexual intercourse during the year following program entry (no comparison group was studied).

IMPLICATIONS OF INTERVENTION PROGRAMS

This literature review has led us to several conclusions. The health promotion literature distinguishes between intervention strategies that are "person-focused" and "environmentally- or contextually-focused." Indeed, many

interventions have been faulted for being so individually-oriented that they seem to espouse a "blame the victim" approach. Interventions need to pay more attention to the situations in which sex occurs, the role of families, peers, and schools, and the mixed messages of the cultural milieu.

Second, intervention programs vary as to their outcomes, with some focusing on very specific outcomes, such as delay of the onset of intercourse or use of contraception, while others focus on more inclusive outcomes, such as school academic and behavioral success, as well as delay of intercourse. In the sexual health promotion literature, both specific and general paradigms are represented. Often, the specific approaches are based on public health models, with heavy doses of information dissemination or specific change agents specified, such as peer modeling. Such paradigms tend to over-emphasize single risk factors, or a limited set of them, as being responsible for a particular behavior.[95] They also focus on prevention more than health promotion. The more general paradigms are likely to conceptualize healthy behavior as multidetermined and different domains of healthy behavior as interrelated (i.e., students who are doing well in school and motivated to stay in school are less likely to engage in behaviors that led to unsafe sex). A focus on multiple antecedent risk conditions, as reviewed earlier, might help to overcome the narrow etiological models used previously, while a consideration of the similarities and differences in factors that lead to various domains of health might broaden the scope of intervention programs to include health promotion.

Third, interventions have been notoriously deficient in helping youth manage risky behavior and anticipate risky situations in advance. Since risk factors cannot always be eliminated or altered, individuals need to learn to manage risk. This approach is not meant to "blame the victim," but to interject some realism about the likelihood of altering some of the individual and environmental conditions. By late adolescence, almost all youth have friends who are engaging in sexual intercourse, some of whom are doing so without using contraception. Short of altering one's peer network, or, for older youth in some settings, having no friends, youth can learn about the peer-oriented situations most likely to lead to sex or to unprotected sex (i.e., in the context of drinking). They can also learn more about their motives and their partner's motives for having sex or for having sex without contraception.

Fourth, health promotion and disease prevention need to be considered simultaneously in order to define sexual health or well-being.[96,97] The first three dimensions of sexual well-being are based on current notions of health

promotion. The fourth dimension—safe sex—is usually considered vis-à-vis disease prevention. Most of the interventions reviewed here[98,99] have as their express goal preventing pregnancy. The educational campaigns against the HIV infection also are preventive in nature.[100] However, a few of the recent initiatives are stressing healthy sexuality, as well as pregnancy prevention. For example, some programs stress feeling good about one's body and sexual maturation changes. Others focus on helping individuals negotiate sexual encounters with peers, including respect of potential partners' requests for safe sex. Such a broadening of the intervention agenda to include promotion as well as prevention is critical. However, it is unlikely to be accomplished if all aspects of healthy sexuality are not taken into account (i.e., feeling positive about one's body) and if disease prevention is the only goal.[101]

Conclusion

Multiple pathways to sexual well-being probably exist. Acknowledgment of various routes to healthy sexuality might defuse the political nature of many policy debates. We present several such pathways—practicing sexual abstinence but having positive feelings about one's body; not engaging in sexual intercourse with another, but engaging in self-exploration; engagement in sexual behavior with another in the context of a committed relationship in middle or late adolescence and in the context of safe sex practices; and encouragement in pre-intercourse behaviors with another during the early and middle adolescent period, which may or may not result in intercourse in later years. More negative pathways might include involuntary sexual behavior/abuse during childhood or the early adolescent years; intercourse in the beginning of adolescence without contraceptives; multiple partners and unsafe practices; sexual intercourse as a way of obtaining drugs. Other enhancing and limiting pathways could be specified. The point is that research is needed to identify such pathways, to specify their antecedents, and to track their developmental trajectories.[35,100] From a policy perspective, programs could be initiated that discourage the more limiting pathways and encourage those positive pathways acceptable to a specific community.

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